

REMARKS/ARGUMENTS

Claims 16 to 30 are active in the application. Reconsideration is respectfully requested.

The present invention relates to aqueous dispersions comprised of water-soluble and/or water-swellaable cationic copolymers.

Claim Objection

The objection to Claim 25 has been obviated by the amendment made to the claim. Entry of the amendment is respectfully requested.

Claim Rejection, 35 USC 103

Claims 16, 18-20, 24 and 26 stand rejected based on 35 USC 103 as obvious over Mallon et al '839 in view of Jachowicz et al '752. This ground of rejection is respectfully traversed.

Applicants believe it is of some importance to reconsider the commentary of the paragraph that bridges pages 1 and 2 of the specification. Page 1 of the text mentions problems associated with the preparation of aqueous dispersions that are comprised of water-soluble and/or water-swellaable cationic copolymers. The problems can be solved by aqueous dispersions of water-swellaable and high molecular weight, water-soluble polymers that have low bulk viscosities, high active solids content, minimal quantities of dilutive material, and which dissolve rapidly. *Aqueous dispersions typically consist of a discontinuous polymer-containing phase and a continuous aqueous phase. The discontinuous polymer-containing phase may contain water. The continuous aqueous phase generally contains water, a different water-soluble polymeric dispersant and/or a salt. Such aqueous dispersions of*

cationic polymers have been described in the art, and in the case of the Mallon et al reference that is cited of record, salts are used to precipitate the polymer that is formed during polymerization. The precipitated polymer particles are then stabilized with the appropriate dispersant. (As stated at col 4, lines 31-35 of the patent, the polymer dispersions may be stabilized by a dispersant, which may be a different water-soluble polymer, and the precipitated polymer is preferably formed by polymerization of monomers in the salt solution, optionally in the presence of said dispersant.) Otherwise, the precipitated polymer particles tend to stick together and form a mass.

Mallon et al describes the utilization of polymeric dispersants to stabilize the dispersions of cationic polymers (see col 5, line 5 to col 6, line 25). The polymeric dispersants disclosed in the patent are nonionic, anionic and cationic polymers that are used to stabilize the cationic polymer of the dispersion. On the other hand, the present invention differs significantly from Mallon et al in that a free-radical copolymerization of reacting components (a) (a cationic monomer), (b) (a water-soluble monomer), and (c) (optionally a bi- or polyfunctional, free radically copolymerizable monomer) occurs in the presence of an amphoteric dispersant which has an overall negative charge. It is important to understand that by amphoteric, applicants mean a polymer which consists of repeating units that contain a cationic charge, as well as repeating units that contain an anionic charge. For instance, Examples 3 and 5 show the use of poly(vinylamine-co-acrylic acid) as the amphoteric dispersant. No such amphoteric dispersant is disclosed by Mallon et al.

The Examiner refers to the subject matter bridging columns 21 and 22 of the patent which lists nonionic monomers, but states that this disclosure is basis for concluding that the patent teaches copolymers that meet the limitation of the dispersant of the present invention. This is incorrect, since the patent is only listing in the indicated portion thereof the types of

nonionic monomers that can be used to prepare nonionic polymer dispersants. Columns 21 and 22 do not provide a teaching of an amphoteric polymer dispersant.

The deficiencies of Mallon et al are not overcome or improved upon by Jachowicz et al. The '752 patent discloses a one-step cleaning formulation and conditioning compositions for keratinaceous substrates. The patent does not describe the manufacture or synthesis of cationic polymers. Moreover, although the patent discloses amphoteric surfactants (dispersants), as well as anionic surfactants, it does so in the context of an ingredient that is added to a composition that already includes a cationic polymer obtained from an external source. (See columns 12 and 13 of the patent where Compositions 5-7 are described that are formulations that contain a cationic polymer with added amphoteric surfactant. There is no disclosure of the preparation of a cationic polymer by the polymerization of appropriate monomers in an aqueous medium that contains an amphoteric dispersant. Further, Jachowicz et al actually teaches away from the use of amphoteric surfactants in the form of polymers. That is, the reference at column 2, lines 43-47 states that the formulations of the invention preferably contain only one type of polymeric ingredient having a polar character, i.e., the disclosed cationic polymers. It further states that *the absence of other polymeric molecules in the formulations appears to enhance their performance and stability characteristics, as well as such physical properties as foaminess and thickness.*

The patent at column 10, lines 14-15 states that *in discussing anionics, it is preferred that any amphoteric surfactant used be non-polymeric.* It is therefore clear that the '752 patent teaches away from the utilization of polymeric amphoteric protective colloids of the opposite charge of the main cationic polymer component of an aqueous dispersion. Accordingly, the combined references do not suggest the invention and withdrawal of the rejection is respectfully requested.

Claim 17 stands rejected based on 35 USC 103 as obvious over Mallon et al '839 in view of Jachowicz et al '752 and further in view of Lenney et al, U.S. Patent 5,470,903. This ground of rejection is respectfully traversed.

Applicants disagree with the Examiner's conclusion that Mallon et al teaches all of the present claim limitations. Nowhere does the reference teach the polymerization of the indicated monomer components (a), (b) and (c) to form a cationic polymer in an aqueous medium that contains an amphoteric polymeric dispersant of overall negative charge. Thus, the basis for the rejection of Claim 17 is inadequate.

The Examiner refers to the portion of the disclosure at column 2, lines 45-54 where it is mentioned that in a vinylformamide polymer some of the units may be hydrolyzed to vinyl amine units. However, an amphoteric polymeric dispersant still does not exist. The concept of polymerizing the monomer combination of the present invention to produce a cationic polymer in the presence of an amphoteric dispersant of overall opposite charge is not found in the reference. Accordingly, the rejection of Claim 17 is overcome and withdrawal of the rejection is respectfully requested.

Claims 21-23, 25, 27 and 30 stand rejected based on 35 USC 103 as obvious over Mallon et al '839 in view of Jachowicz et al '752 and further in view of Huang et al, '6207. This ground of rejection is respectfully traversed.

As is clear from the discussion above, the primary references that have been cited as suggesting the present invention do not. Huang et al does not overcome these deficiencies. Huang et al disclose aqueous dispersions of cationic water-soluble polymers which are said to contain some recurring anionic units. However, the fact alone is not the present invention. Accordingly, the combined references do not suggest the invention and withdrawal of the rejection is respectfully requested.

Claims 28 and 29 stand rejected based on 35 USC 103 as obvious over Mallon et al '839 in view of Jachowicz et al '752 and further in view of Bhattacharya. This ground of rejection is respectfully traversed.

As pointed out above, the primary references do not suggest either the present process of preparing an aqueous dispersion of a cationically charged polymer prepared by the polymerization of the appropriate monomers in the presence of an amphoteric dispersant of overall negative charge, nor the dispersion itself. Further, Bhattacharya does not improve upon this deficiency, because the reference only discloses personal care preparations which contain a cross-linked cationic vinyl addition polymer. No mention is made of the present cationically charged polymer dispersion and the specific method by which it is prepared. Accordingly, Claims 28 and 29 are unobvious over the cited references and withdrawal of the rejection is respectfully requested.

With regard to the rejections of paragraphs 10 and 11 of the Office Action, since it is clear that the newly cited and applied Mallon et al '839 and Jachowicz et al '752 references are not an improvement over the Boechke reference, the newly applied prior art combinations do not suggest the invention in any of its claimed embodiments and withdrawal of the rejection is respectfully requested.

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It is believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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